AN 1986:595473 HCAPLUS
DN 105:195473
TI Thermomechanical treatment of alloy steel
IN Yamaguchi, Toru
PA Komatsu, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61124521	A2	19860612	JP 1984-245875	19841122

AB Alloy steel contg. 0.5-1% C for drive shafts or gears is thermomech. treated to improve fatigue strength. The steel parts are austempered for Rockwell C hardness 50-60, warm-shot **peened**, quenched to room temp., and **peened** with fine shot. Thus, steel specimens (martensite-transition starting temp. 210.degree.) contg. C 0.6, Cr 1, Ni 0.5, and Mo 0.2% were austempered 2 h at 230.degree., **peened** with coarse shot (0.8 mm diam.), quenched, and **peened** with fine shot (0.3 mm diam.). The 2nd-**stage peening** increased the residual compression stress from 100 to 120 kg/mm2 and the max. stress load for rupturing in .gtorsim.1.2.times.105 cycles of fatigue tests from .apprx.139 to .apprx.150 kg/mm2.

AN 1989:443488 HCAPLUS
DN 111:43488
TI Sheet **peening** of carbonitrided steel parts
IN Miwa, Yoshihisa
PA Mazda Motor Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63227791	A2	19880922	JP 1987-62291	19870316
	JP 2723150	B2	19980309		

AB The steel parts, e.g., gears, after carbonitriding and annealing are shot **peened** for improvement of fatigue strength. The **peening** is done in 2 **stages** with coarse shot of .ltoreq.1 mm diam. and then with fine shot of 1/3.5 to 1/2 that of the coarse-short size. Carbonitrided, annealed SCM 420 and SCr 420 steel parts are shot **peened** to show improved fatigue strength.

AN 1991:564498 HCAPLUS
DN 115:164498
TI Manufacture of cutting tools coated for high wear resistance
IN Katayama, Akira; Imai, Tatsuya; Sawajima, Tetsuo; Imamura, Hiroto
PA Nippon Steel Corp., Japan; Nittetsu Chokko K. K.; Toho Kinzoku Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02254144	A2	19901012	JP 1989-72003	19890327

AB The cutting tools from cermet, hard alloy, or high-speed steel are manufd. with a carbide, **nitride**, carbonitride, oxide, oxycarbide, oxynitride, oxycarbonitride, and/or Al2O3 coatings, and then are shot **peened** with the impact at 20-120 m/s and angle .gtoreq.30.degree. with fine shot having diam. of 10-2000 .mu.m. Thus, the hard alloy tip (contg. WC 90, TiC 2, TaC 2, and Co 6%) was chem.-vapor coated with TiC, TiCN, and Al2O3, and then was shot **peened** with cast iron shot (av. diam. 100 .mu.m) at 80 m/s and 70-90.degree. angle. Service life of the cutting tip was increased by 7 times.

AN 2000:111093 HCAPLUS
DN 132:169339
TI Nitriding and shot **peening** of steel springs
IN **Ishida, Masaaki**; Utsumaki, Kazuhiro; Isono, Hiroshi; Teratoko, Keiichiro; Yamada, Yoshiaki
PA Suncor, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000042922	A2	20000215	JP 1998-214084	19980729

AB Springs are surface treated by (A) nitriding and then (B) shot **peening** with 20-80 .mu.m-diam. hard metal particles at collision speed .gtoreq.80 m/s by controlling instantaneous temp. increase to induce dynamic strain aging and work hardening by N and to suppress recovery recrystn. of matrixes. Optionally, the springs are treated by (A), (B)' shot **peening** with 0.5-0.8 mm-diam. hard metal particles to give residual stress, (B)'' shot **peening** with 0.2-0.4 mm-diam. hard metal particles to give compressive residual stress and hardness, and then (B). Alternatively, the springs are surface treated by (C) shot **peening** with 0.3-0.8 mm-diam. and Vickers hardness .gtoreq.500 hard metal particles at collision speed .gtoreq.60 m/s to give residual stress, (B), and then nitriding. Resulting springs have high durability and resistance to fatigue fracture.

AN 2000:612158 HCAPLUS
DN 133:196560
TI Surface nitridation of springs for durability and fatigue fracture resistance
IN **Ishida, Masaaki**; Uzumaki, Kazuhiro; Isono, Hiroshi; Teradoko, Keiichiro; Yamada, Yoshiaki
PA Suncor, Inc., Japan; Fuji Mfg. Co., Ltd.; Fuji Kihan K. K.
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000239741	A2	20000905	JP 1999-41865	19990219

AB Spring surface is treated by (A) surface nitridation and (B) shot **peening** with hard metal particles, having hardness equal or lower than the surface hardness (micro-Vickers hardness of .apprx.5 .mu.m depth from the surface) of the treating surface, particle diam. 20-100 .mu.m, and sp. gr. 7.5-9.0, under certain shot **peening** speed with controlling the momental temp. increase limit (due to collision of the particles) of the Fe matrix to cause process hardening and stress aging with N atoms but not to cause surface softening due to recovery recrystn. The shot **peening** speed is controlled to (1) 70-200 m/s or (2) 95 m/s .+-. 20% (76-114 m/s). The spring may be pretreated by (a) shot **peening** of hard metal particles (Hv 500-800 but softer than the treating surface, diam. 500-900 .mu.m) at 50-90 m/s for generation of compressive residual stress into the core part of the spring, without generation of microcracks on its surface. The spring may also be pretreated, between process a and process A, by jetting of hard metal particles (hardness lower than the treating surface, diam. 0.2-0.4 mm) for increase of the compressive residual stress and hardness. The springs are esp. suitable for use in internal combustion engines.